

**REMARKS**

The Office Action and cited and applied references have been carefully reviewed. No claim is allowed. Claims 59-63, 65, 67-74 and 81-91 presently appear in this application and define patentable subject matter warranting their allowance. Reconsideration and allowance are hereby respectfully solicited.

The disclosure has been objected to because of informalities. This objection is obviated by the amendment to the specification at pages 1-2.

The information disclosure statement filed August 16, 2008, is indicated as failing to comply with 37 CFR 1.98(a)(2) as copies of non-patent literature documents numbers 1-30 and 41 were not provided and were not considered.

Applicants would like to point out that non-patent literature document numbers 1-30 were previously cited (with copies provided) in prior application 10/854,746, which is claimed for benefit of priority in the declaration and in the Application Data Sheet (ADS) as filed. Accordingly, pursuant to 37 CFR §1.98(d), copies of these documents need not be filed in this application in order to be considered by the examiner. The examiner is specifically requested to consider these references and provide an examiner-initiated copy of the SB08 forms listing the references cited.

Furthermore, non-patent literature document number 41 (Young-wook Jun et al. 2001) should be considered by the examiner as a copy of this reference was indeed provided with the IDS (the undersigned has confirmed that this reference is of record in PAIR). The examiner is requested to indicate that this reference is being considered.

Claim 81 has been objected to because of informalities. Appropriate correction is made, thereby obviating this objection.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

Claims 65 and 72 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection is obviated by the amendments to claims 65 and 72.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

Claims 59-65 and 75-81 have been rejected under 35 U.S.C. §102(b) as being anticipated by Majumdar et al. (US 2002/0175408). This rejection is respectfully traversed.

Majumdar discloses methods for fabricating nanostructures and nanowires. The methods are based on a vapor-liquid-solid (VLS) growth technique which is carried out by chemical vapor deposition (CVD) (e.g., Fig. 12, paragraphs [0065], [0066], [0068], [0088], [0089], and [0090]). In the VLS

technique the growth of the nanowires is pre-formed on top of a substrate, e.g., Si (paragraphs [0091] and [0146]).

The nanostructures of Majumdar are not free and cannot therefore be activated or functionalized from both ends. As such, while Majumdar provide nanostructures having an elongated structure and an end portion of a different material, functionalization of **both** ends is not possible. A dumbbell configuration cannot be obtained by the method of Majumdar. Additionally, the nanostructures of Majumdar cannot be solubilized in a liquid medium.

Furthermore, it is applicant's position that, in fact, the nanostructures of Majumdar do not have a zone of a different material at their end. This assumption is based on the understanding that the CVD process essentially coats the complete nanostructure with the material which is vaporized. While this observation is not explicitly mentioned by Majumdar, one of ordinary skill in the art would recognize that this vaporization process cannot provide a distinct material separation in each zone.

Claim 59 is now amended to clarify the distinction from the prior art and now reads (emphasis added):

A nanostructure having at least one elongated structure element of a first material, said elongated structure element being 100nm in length or less and having

- at least one end portion being coupled to at least one nanozone; and

- at least other end portion capable of coupling to a further nanozone;

wherein said nanozone and further nanozone each being of a second material that differs from said first material in at least one property selected from: electrical conductivity, chemical reactivity and composition.

Support for the amendments to claim 59 is found at least at page 7, lines 1-3; page 10, lines 26-27; page 12, lines 1-5; and in Fig. 2D and Fig. 7.

The presently claimed invention now requires that one of the end portions of the elongated structure is capable of coupling to a further nanozone. Clearly, the end portion of the nanostructure of Majumdar is surface-bound and is thus not free for coupling. It should be emphasized that in its current surface-bound configuration, the substrate cannot be regarded as a nanozone. Therefore, the nanostructures of the present invention cannot be anticipated or made obvious by Majumdar.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

Claims 68-74 have been rejected under 35 U.S.C. §102(b) as being anticipated by Patel (WO 91/06036). This rejection is respectfully traversed.

Patel discloses methods for coating nanoparticles with one or more layers of various materials such as metals, polymers and halides. Patel's process is clearly aimed at forming coatings or layers and not at forming distinct material zones, as is the aim of the presently claimed process.

The mere fact that the Patel's process does not provide full coating of the nanostructures (being in fact nanoparticles, namely having a core of a particulate shape rather than an elongated structure) cannot be equated with the presently claimed process, which is aimed at purposely directing deposition of a second material at the opposite ends of an elongated nanostructure. The incomplete layer coverage inherent in Patel's process attests to the inability to direct material to certain predetermined areas of the nanostructures. As such, Patel actually teaches away from the presently claimed method.

The fact that Patel's process may be applied to nanoparticles having different shapes does not by itself teach the direction of material deposition to certain selected regions of the nanoparticles, namely opposite ends of an elongated structure. Patel does not interest himself with such a

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configuration. Therefore, Patel cannot be considered to anticipate the presently claimed method.

In order to clearly emphasize the features that differentiate from Patel's process, independent claim 68 is now amended.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

Claims 66 and 67 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Majumdar as applied to claim 59 above. This rejection is respectfully traversed.

For the same reasons as discussed above in the anticipation rejection over Majumdar, Majumdar's disclosures and teachings cannot make obvious the presently claimed invention.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

In view of the above, the claims comply with 35 U.S.C. §112 and define patentable subject matter warranting their allowance. Favorable consideration and early allowance are earnestly urged.

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Respectfully submitted,

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